

THE GENUS *FURCADESHA* QUICKE (HYMENOPTERA, BRACONIDAE, BRACONINAE) IN CHINA, WITH DESCRIPTIONS OF TWO NEW SPECIES

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Abstract The genus *Furcadesha* Quicke of the tribe Adeshini van Achterberg (Hymenoptera, Braconidae, Braconinae) is recorded from China for the first time. Two new species, *Furcadesha nanningensis* Liu et Chen, sp. nov. and *Furcadesha bimaiculatus* Yang et Liu, sp. nov. are described. A key to species of the genus is provided. The type specimens are deposited in the Beneficial Insects Laboratory, College of Plant Protection, Fujian Agriculture and Forestry University, China.

Key words Braconidae, Braconinae, *Furcadesha*, new record genus, new species, China.

Furcadesha was erected by Quicke in 1986. The most remarkable feature of the genus is that the fifth metasomal tergite with the posterior margin strongly produced on either side of the midline, forming a fork-like structure which is divided medially by a deep, narrow emargination. There are only two known species before this study (Quicke, 1986; Quicke and Ingram, 1993) and they are occurring in the Oriental and Australian regions. The type species *F. huddlestoni* Quicke was reported to occur in India, and *F. walteri* Quicke et Ingram) from Australia (south west Queensland). Nothing is known of the biology of this genus.

The genus *Furcadesha* is reported for the first time from China in this paper. Two new species, *Furcadesha nanningensis* Liu et Chen, sp. nov. and *Furcadesha bimaiculatus* Yang et Liu, sp. nov. are described. A key to species of the genus is provided. Type specimens are deposited in the Beneficial Insects Laboratory, College of Plant Protection, Fujian Agriculture & Forestry University, China.

Furcadesha Quicke, 1986

Furcadesha Quicke, 1986: 266. Type species: *Furcadesha huddlestoni* Quicke, 1986. Monobasic and original designation; Quicke, 1987: 113; Quicke et Ingram, 1993: 314.

Diagnosis. Terminal flagellomere acuminate. Scapus shorter ventrally than dorsally. Head very transverse (Figs. 4, 16). Clypeus not separated from the face by a carina, but dorsally clearly elevated above the latter (Figs. 7, 19). Face usually densely short setose. Antennal sockets considerably protruding in front of the eyes, with strong ridges running away from the aperture towards the eye and frons (Figs. 7, 16, 19). Frons steeply sloping in front of the ocelli. Mesoscutum largely densely setose, but more or less smooth, shiny and glabrous mid-anteriorly (Figs. 9, 21). Notauli distinct, smooth (Fig. 9) to crenulate partly (Fig. 21) or completely. Scutellum densely setose. Scutellar sulcus

crenulate. Mid-longitudinal carina of metanotum well developed and lamelliform. Pronotum (Fig. 11) deeply crenulate laterally and with dense setosity posteriorly. Epicnemial area crenulate and densely long setose together with the adjacent part of mesopleuron, the remainder of mesopleuron and mesosternum largely smooth, shiny and glabrous. Propodeum (Figs. 10, 23) with a complete, mid-longitudinal carina, the remainder being punctate to strongly rugose. Fore-wing veins 3-SR and 2-M more or less straight and parallel. Vein 1-SR+M distinctly longer than 2-SR+M. Veins m-cu and CU1b more or less forming a straight line. Veins 1-SR and C+SC+R forming an angle of approximately 55°. Vein cu-a more or less interstitial. Hind-wing vein 1r-m longer than 2-SC+R. Base of hind-wing evenly setose. Fore-tibia without an apical transverse row of peg-like bristles. Claws of all legs with large pointed basal lobes (Figs. 5, 17). Hind-tarsi with a distinct, ventral, longitudinal row of short, dark setae. Metasoma largely with rugulose to striate punctulate sculpture (Fig. 11). First tergite with a clearly demarked, more or less vertice anterior face, which bordered by a somewhat irregular dorsal carina. Dorsolateral carinae rather poorly defined, their posterior parts inclined dorsally in lateral aspect. Behind the dorsal carinae, the first tergite is coarsely rugose. Second tergite (Figs. 2, 14) with a distinct mid-basal area; anterior, sub-lateral, sub-longitudinal grooves various. Second suture crenulate (Figs. 2, 14). Fourth and fifth tergites with a distinct, angular protuberance of the posterior margin sub-laterally, which of the fifth tergite forming the outer border of a moderately deep, semicircular, sub-lateral emargination (Figs. 6, 18). The posterior margin of the fifth tergite strongly produced sub-medially to form a pair of posteriorly rounded projections which divided medially by a deep cleft (Figs. 6, 18).

Distribution. Oriental, Australian; four species.

Biology. Unknown.

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Remarks. The genus appears to be the sister group of *Spinadesha* Quicke, 1988 in that both genera possess the fifth metasomal tergite with the posterior margin strongly produced on either side of the midline (Wang *et al.*, 2006). But *Furcadesha* differs from the latter in posterior margin of fifth metasomal tergite with two strong productions on either side of the midline, forming a fork-like structure which is divided medially by a deep, narrow emargination; mesoscutum largely densely and evenly setose.

Key to species of *Furcadesha* Quicke

1. Pleural suture complete and crenulate; notauli distinct and crenulate; second metasomal tergite with a distinct small mid-basal triangular area which produced posteriorly to form a distinct carina 2
- Pleural suture incomplete and not crenulate (Fig. 11); notauli not crenulate (Fig. 9) or only crenulate anteriorly (Fig. 21); second metasomal tergite with a distinct and rather large mid-basal area which not produced posteriorly to form a carina (Figs. 2, 4) 3
2. Length of fore wing vein SR1 2.4 times vein 3-SR; scapus strongly

expanded dorso basally; mesosoma and metasomal tergites extensively marked with black *F. huddlestoni* Quicke

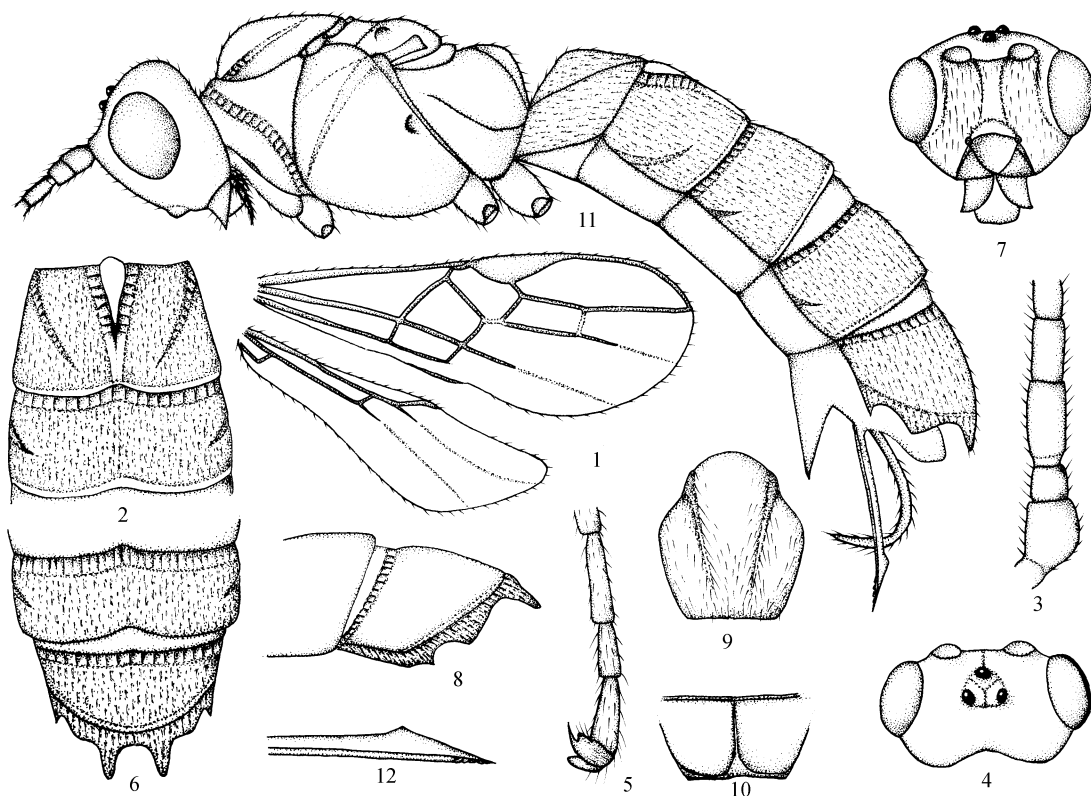
Length of fore wing vein SR1 1.8 times vein 3-SR; scapus normal, not expanded dorsally; mesosoma and metasomal tergites entirely brownish yellow to brownish orange *F. walteri* Quicke

3. Notauli crenulate anteriorly, nearly convergent posteriorly (Fig. 21); mid-basal area of second metasomal tergite going beyond the median of tergite and not convergent posteriorly (Fig. 14); mid-longitudinal area of metasomal tergites yellowish white; second to fifth metasomal tergites distinctly marked with a pair of dark brown maculae, respectively *F. bimaculatus* Yang & Liu, sp. nov.

Notauli not crenulate, and not convergent posteriorly (Fig. 9); mid-basal area of second metasomal tergite convergent posteriorly but not to reach the median of tergite (Fig. 2); metasomal tergites largely reddish brown and without macula *F. nanningensis* Liu & Chen, sp. nov.

Furcadesha nanningensis Liu et Chen, sp. nov. (Figs. 1-12)

Holotype ♀, Body length 3.1 mm, fore wing length 3.0 mm, ovipositor length (part exerted beyond the apex of the fifth tergite) 0.5 mm.



Figs 1-12. *Furcadesha nanningensis* Liu et Chen, sp. nov., ♀, holotype.

1. Wings. 2. Second and third metasomal tergites, dorsal aspect. 3. Four basal segments of antenna, lateral aspect. 4. Head, dorsal aspect. 5. Outer hind claw. 6. Fourth and fifth metasomal tergites, dorsal aspect. 7. Head, frontal aspect. 8. Fourth and fifth metasomal tergites, lateral aspect. 9. Mesoscutum, dorsal aspect. 10. Propodeum, dorsal aspect. 11. Habitus, lateral aspect. 12. Apex of ovipositor, lateral aspect.

Head. Antenna with 39 flagellomeres. Length of first flagellomere 1.1 times second flagellomere. Scapus somewhat expanded dorsally (Fig. 3). Height of clypeus: inter-tentorial distance: tentorial ocular distance = 1.0: 6.0: 5.0. Height of eye: width of face: width of head = 2.4: 1.0: 2.0. Face distinctly protruding below the antennal sockets (Fig. 7). Head strongly narrow behind

eye (Fig. 4). POL: OD: OOL = 2.0: 1.0: 3.0.

Mesosoma. Length of mesosoma 1.6 times its height. Mesoscutum extensively setose except medio-anterior part of median lobe and median part of lateral lobes (Fig. 9). Notauli deeply impressed, not crenulate and not convergent posteriorly (Fig. 9). Bristles arising from the mid-anterior part of pronotum all curving

posteriorly. Mesopleuron with patches of setosity ventrally and posteroventrally adjacent to the pleural suture. Pleural suture incomplete and not crenulate (Fig. 11). Metapleuron and lateral part of propodeum densely setose and punctulate.

Fore wing (Fig. 1). Length of SR1: 3 SR: r = 5.5: 2.8 0.8; length of 2 SC+ R: m cu = 1.5: 0.8. Shortest distance between first subdiscal cell and second submarginal cell: length of vein m cu = 1.0: 3.0. Hind wing (Fig. 1). Apex of C+ SC+ R with 1 hamule.

Legs. Length of fore femur: tibia: tarsus = 3.5 5.0 5.6. Length of hind femur: tibia: basitarsus = 4.2: 7.2: 3.0. Length of hind basitarsus 8.8 times its maximally deep.

Metasoma. Metasomal tergites largely, evenly and longitudinally striate punctate (Figs. 2, 6, 11). Posterior width of first tergite 1.2 times its length. Posterior width of second tergite 1.7 times its median length, with a distinct and rather large mid-basal area which not to reach the median of tergite and not produced posteriorly to form a carina though convergent posteriorly (Fig. 2); mid-basal area bordered by a pair of crenulate lateral grooves (Fig. 2); sub-lateral grooves rather distinct and crenulate (Fig. 2). Fifth tergite with a distinct, crenulate, transverse basal groove (Fig. 6).

Coloration. Reddish brown except for the following: medioanterior part of median lobe and median part of lateral lobes of mesoscutum, tarsungulus, mid-longitudinal area of propodeum brown; scutellum and tegulae brownish yellow; metasoma brownish yellow laterally and ventrally, tergites largely reddish brown and without macula. Wings more or less translucence with dark brown venation.

Male. Unknown.

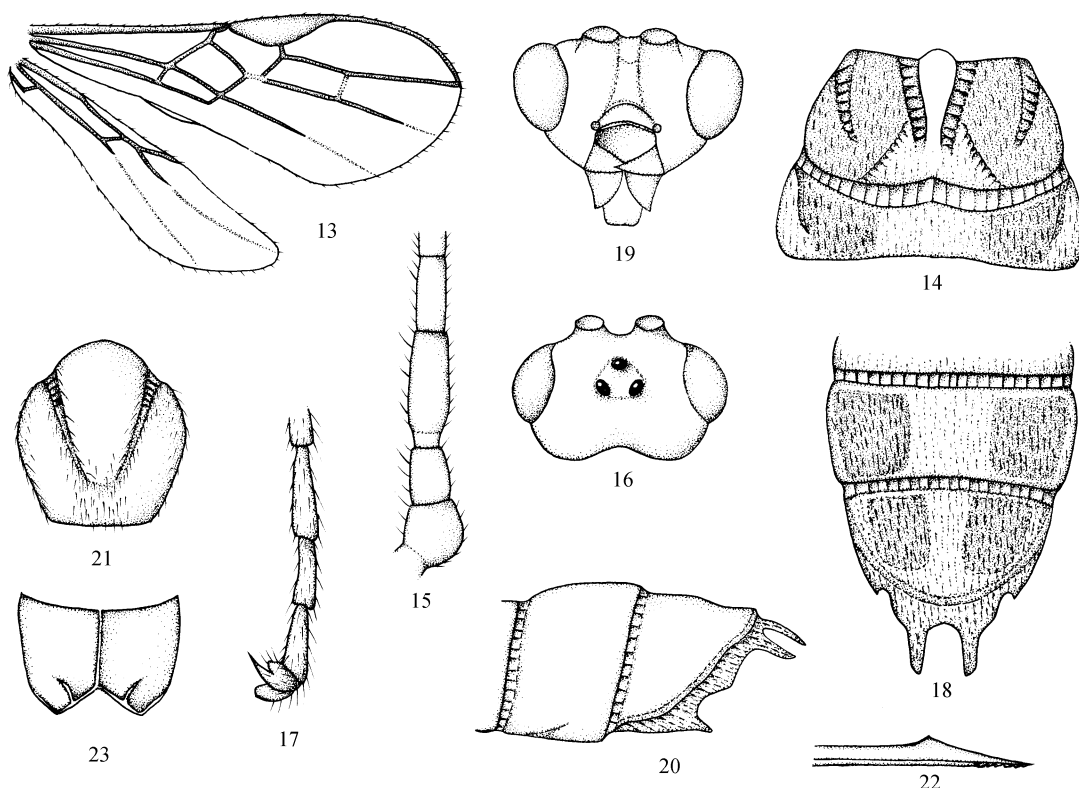
Material examined. Holotype ♀, Nanning (23°N, 108°E), Guangxi, China, 27 May 1988, ZOU Ming Quan.

Distribution. China (Guangxi).

Biology. Unknown.

Etymology. The specific name refers to the locality of the holotype, "Nanning".

Remarks. The new species is similar to the *Furcadesha bimaculatus* Yang et Liu, sp. nov., but can be distinguished from the latter by: 1) notauli not crenulate and not convergent posteriorly (Fig. 9); 2) mid-basal area of second metasomal tergite convergent posteriorly but not to reach the median of tergite (Fig. 2); 3) metasomal tergites largely reddish brown and without macula.



Figs 13-23. *Furcadesha bimaculatus* Yang et Liu, sp. nov., ♀, holotype.

13. Wings. 14. Second and third metasomal tergites, dorsal aspect. 15. Four basal segments of antenna, lateral aspect. 16. Head, dorsal aspect. 17. Outer hind claw. 18. Fourth and fifth metasomal tergites, dorsal aspect. 19. Head, frontal aspect. 20. Fourth and fifth metasomal tergites, lateral aspect. 21. Mesoscutum, dorsal aspect. 22. Apex of ovipositor, lateral aspect. 23. Propodeum, dorsal aspect.

Furcadesha himaculatus Yang et Liu, sp. nov.
(Figs. 13-23)

Holotype ♀, Body length 3.3 mm, fore-wing length 3.1 mm, ovipositor length (part exerted beyond the apex of the fifth tergite) 0.8 mm.

Head. Antenna with 45 flagellomeres. Length of first flagellomere 1.4 times second flagellomere. Scapus moderately expanded dorsally (Fig. 15). Height of clypeus: inter tentorial distance: tentorial ocular distance = 0.3: 1.3: 1.0. Height of eye: width of face: width of head = 2.8: 1.1: 3.0. Face punctulate, setose and distinctly protruding below the antennal sockets (Fig. 19). Head strongly narrow behind eye (Fig. 16). POL: OD: OOL = 2.0: 1.1: 3.2.

Mesosoma. Length of mesosoma 1.8 times its height. Mesoscutum largely glabrous except medio-posterior part of median lobe and along line of notaulus (Fig. 21). Notauli deeply impressed, crenulate anteriorly, nearly convergent posteriorly (Fig. 21). Pronotum evenly setose. Mesopleuron with patches of setosity ventrally and postero-ventrally adjacent to the pleural suture. Pleural suture incomplete and not crenulate. Metapleuron and mid-transverse part of propodeum densely setose and punctulate.

Fore wing (Fig. 13). Length of SR: 3-SR: r = 6.0: 3.5: 0.9; length of 2-SC+ R: mrcu = 2.0: 0.9. Shortest distance between first subdiscal cell and second submarginal cell: length of vein mrcu = 0.8: 2.0. Hind wing (Fig. 13). Apex of C+ SC+ R with 1 hamule.

Legs. Length of fore femur: tibia: tarsus = 3.8: 4.5: 3. Length of hind femur: tibia: basitarsus = 4.8: 8.0: 3.0. Length of hind basitarsus 10.0 times its maximally deep.

Metasoma. Metasomal tergites largely, evenly and longitudinally striate-punctate (Figs. 14, 18). Posterior width of first tergite 1.6 times its length. Posterior width of second tergite 1.9 times its median length, with a distinct and rather large mid-basal area which beyond the median of tergite, but not convergent posteriorly and not produced posteriorly to form a carina (Fig. 14); mid-basal area bordered by a pair of crenulate lateral grooves (Fig. 14); sub-lateral grooves rather distinct and crenulate (Fig. 14). Fifth tergite with a distinct, crenulate, transverse basal groove (Fig. 18).

Coloration. Yellowish brown except for stemmaticum, scapus, first and second flagellomeres, medio-anterior part of median lobe and median part of lateral lobes of mesoscutum, tarsungulus brownish red, mid-longitudinal area of propodeum dark brown. Mid-longitudinal area of metasomal tergites yellowish white; second to fifth metasomal tergites distinctly marked with a

pair of dark brown maculae, respectively. Wings more or less translucence with brown venation.

Male. Body length 2.9 mm, fore wing length 2.7 mm. A pair of posteriorly rounded projections of the posterior margin of the fifth tergite shorter than ♀. Mid-basal area of second metasomal tergite produced posteriorly to form a fine carina. Mid-longitudinal carina of propodeum stronger than ♀. Metasoma slender than ♀.

Material examined. Holotype ♀, Mt. Daqing (22.5° N, 108° E), Guangxi, China, 13 Sep. 1993, ZOU Ming-Quan. Paratypes: 1 ♂, Mt. Qingxiu, Guangxi, China, 10 Sep. 1993, ZOU Ming-Quan; 1 ♀, Mt. Qingxiu, Guangxi, China, 8 Sep. 1993, WU Zhi-Shan.

Distribution. China (Guangxi).

Biology. Unknown.

Etymology. The name of the new species refers to its second to fifth metasomal tergites distinctly marked with a pair of dark brown maculae, respectively.

Remarks. The new species is similar to *Furcadesha huddlestoni* Quicke, but can be distinguished from the latter by: 1) pleural suture incomplete and not crenulate; 2) notauli only crenulate anteriorly (Fig. 21); 3) second metasomal tergite with a distinct and rather large mid-basal area which not produced posteriorly to form a carina (Fig. 14).

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中国新纪录属叉突茧蜂属及二新种记述 (膜翅目, 茧蜂科, 茧蜂亚科)

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摘 要 记述中国新纪录属叉突茧蜂属 *Furcadesha* Quicke 及 2 nov.。文中对叉突茧蜂属及新种进行了详细的描述, 新种附有鉴别形态特征图, 并与其近似种作了比较。模式标本存放于福建农林大学益虫研究室。

新种: 南宁叉突茧蜂 *Furcadesha nanningensis* Liu et Chen, sp. nov. 和双斑叉突茧蜂 *Furcadesha bimaculatus* Yang et Liu, sp.

关键词 茧蜂科, 茧蜂亚科, 叉突茧蜂属, 新纪录属, 新种, 中国.

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